

What is claimed is:

1. A catheter for retrieval of an embolic protection device, comprising:
  - an inner shaft including a tubular member;
  - an outer sheath including a side opening, the outer shaft disposed over the inner shaft;
  - the tubular member including a proximal region, a port disposed near the side opening, a distal region, and a tip disposed at the distal region;
  - the tubular member is slidable within the outer sheath; and
  - wherein the inner shaft defines a plurality of openings in addition to the port.
2. The catheter in accordance with claim 1, wherein the openings in the inner shaft are a plurality of flush holes.
3. The catheter in accordance with claim 1, wherein the tip is tapered.
4. The catheter in accordance with claim 1, wherein the length of the opening is between about one to four inches in length.
5. The catheter in accordance with claim 1, further comprising a cover sheath disposed about the outer sheath.
6. The catheter in accordance with claim 5, wherein the cover sheath substantially covers the opening.

7. The catheter in accordance with claim 5, wherein the cover sheath further comprises a slot.

8. The catheter in accordance with claim 7, wherein the slot is substantially self-resealing.

9. The catheter in accordance with claim 7, wherein the slot is adapted to allow passage of the guidewire therethrough.

10. A retrieval catheter and embolic protection device, comprising:  
an inner shaft including a tubular member;  
the tubular member including a proximal region, a port disposed near the proximal region, a distal region, and a tip disposed at the distal region;  
an outer sheath including an opening;  
a cover sheath disposed over the outer sheath;  
a guidewire having a distal end;  
an embolic protection device disposed at the distal end of the guidewire;  
the guidewire is adapted to be disposed within the lumen of the inner shaft and pass through the cover sheath; and  
wherein the inner shaft defines a plurality of openings in addition to the port.

11. The catheter in accordance with claim 10, wherein the openings in the inner shaft are a plurality of flush holes.

12. The catheter in accordance with claim 10, wherein the tip is tapered.

13. The catheter in accordance with claim 10, wherein the length of the opening is about one to four inches.

14. The catheter in accordance with claim 10, wherein the cover sheath substantially covers the opening.

15. The catheter in accordance with claim 10, wherein the cover sheath further comprises a slot.

16. The catheter in accordance with claim 15, wherein the slot is substantially self-resealing.

17. A method for retrieving an embolic protection device, comprising the steps of:

providing a guidewire into a vascular region of a patient, the guidewire having a distal end and an embolic protection device disposed at the distal end;

providing a retrieving catheter comprising an inner shaft and an outer sheath, the outer sheath including an opening; wherein the inner shaft includes a tubular member

having a proximal region, a port disposed near the opening in the outer sheath, a distal region, and a tip disposed at the distal region; and wherein the inner shaft further comprises a plurality of flush holes;

placing the inner shaft in a first position relative to the outer sheath;

advancing the catheter over the guidewire to a position near the embolic protection device;

locking the guidewire relative to the inner shaft;

shifting the inner shaft and the guidewire to a second position relative to the outer sheath, wherein shifting to the second position results in at least a portion of the embolic protection device being disposed within the outer sheath; and

removing the catheter and guidewire from the vascular region.

18. The method in accordance with claim 17, further comprising the step of flushing fluid through the tubular member.

19. The method in accordance with claim 18, wherein the fluid substantially eliminates air from vacant space within the catheter.

20. The method in accordance with claim 19, wherein the fluid substantially eliminates air from distant vacant spaces within the catheter.

21. The method in accordance with claim 17, wherein the tip is tapered.

22. The method in accordance with claim 17, wherein the length of the opening is between about one to four inches.

23. The method in accordance with claim 17, wherein the cover sheath substantially covers the opening.

24. The method in accordance with claim 23, wherein the cover sheath further comprises a slot.

25. The method in accordance with claim 24, wherein the slot is substantially self-resealing.

26. The method in accordance with claim 17, wherein the embolic protection device includes a filter.

27. A method for delivering an embolic protection device, comprising the steps of:

providing a delivery catheter comprising an inner shaft and an outer sheath, the outer sheath including an opening; wherein the inner shaft includes a tubular member having a proximal region, a port disposed near the opening in the outer sheath, a distal region, and a tip disposed at the distal region;

configuring the inner shaft such that at least a portion of the tip extends distally out of a distal end of the outer sheath;

disposing a guidewire within a portion of the inner shaft, the guidewire including an embolic protection device coupled thereto, wherein at least a portion of the embolic protection device is collapsed within the outer sheath;  
advancing the catheter through a vascular region of a patient to a desired location;  
shifting the outer sheath proximally relative the inner shaft and the guidewire such that the embolic protection device emerges from the distal end of the outer sheath; and  
removing the delivery catheter from the vascular region of the patient.